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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/074,660 | 02/13/2002 | Gene R. Hawkins | DP-306261 | 6085 |

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Scott A. McBain
Delphi Technologies, Inc.
P.O. Box 5052
Mail Code 480-414-420
Troy, MI 48007-5052

| EXAMINER | |
|---|---|
| JULES, FRANTZ F | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3617 | |

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/074,660 | HAWKINS ET AL. | |
| | Examiner | Art Unit | |
| | Frantz F. Jules | 3617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3,5-10,12 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-10,12-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-10, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner (5,997,103) in view of Wierzchon (US 6,125,526).

Claims 1-3, 5-10, 12-13

Wagner dscloses a vehicle wheel bearing comprising a vehicle-wheel-bearing non rototable section (24), a vehicle-wheel-bearing spindle rotatable section (12) rotatably attached to the non-rotatable section, wherein the rotatable section has a hole (A) with internal thread, a wheel stud (42) including first and second portions (C, D), wherein the first end portion (C) has external threads rigidly threadably attached to the internal threads of the hole of the rotatable section without the use of a wheel nut as shown in figs. 1, 3, and wherein the second end portion (D) has a wheel-nut-engaging second external threads in accordance with claims 1, 7, and 8.

The rotatable section (12) is a wheel-bearing spindle, the non-rotatable section (22) is a wheel bearing hub as required by claims 2, 6.

The rotatable section (12) includes a flange (E, see mark-up sheet), wherein the flange has the hole (A), wherein the hole is a through hole, wherein the flange has inboard and outboard sides, wherein the first portion of the wheel stud has a bolt head which is

disposed inboard of the inboard side of the flange as shown in fig. 1, and wherein the second external threads of the second portion of the wheel stud are disposed outboard of the outboard side of the flange in accordance with claims 3, 10.

Wagner disclose all of the features as listed above but does not disclose a vehicle wheel bearing assembly comprising a wheel stud having first left-hand external threads on a first portion attached to the hole of the spindle and second right-hand external threads that are oppositely threaded with respect to the first external threads. The general concept of providing a flange structure with internally threaded hole to receive a stud having first left-hand external threads on a first portion which are rigidly threadably attached to the internal threads of the hole and second oppositely threaded right-hand threads is well known in the art as illustrated by Wierzchon which discloses a flange member (20) with internal threads (26) in a hole of the flange to receive a stud (32) having first left-hand external threads (28) on a first portion which are rigidly threadably attached to the internal threads of the hole and second opposite right-hand threads (42), see fig. 4, col. 1, lines 64-67, col. 2, lines 1-5, col. 2, lines 36-41, column, 3, lines 8-15. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wagner to include the use of a wheel stud having first left-hand external threads on a first portion attached to the hole of the spindle and second right-hand external threads that are oppositely threaded with respect to the first external threads in his advantageous vehicle wheel bearing as taught by Wierzchon in order to take advantage of the deformation of a portion of the threads on the wheel flange to retain

the stud in the spindle while reducing bearing and shear stress on the wheel bearing connection thereby increasing the service life of the stud.

***Response to Arguments***

3. Applicant's arguments filed 02/05/2004 have been fully considered but they are moot in view of the new grounds of rejection.

A. Summary of applicant's arguments.

In the amendment, applicant traversed the rejection of the newly amended claims for the following reasons:

1. Wagner does not teach, suggest, or describe wheel stud having oppositely threaded first and second external threads.

2. Wiezerchom stud is not rigidly threadably attached to the internal threads 28 of the brake boosterbooster housing but is pivotally threadably attached allowing the studs 32 to pivot to align themselves with mounting openings 64 of the master cylinder 12. "The examiner wants to replace the rigidly threadably attached stud (without the use of a wheel nut) of Wagner with the non-rigidly-threadably attached stud (without the use of a nut) of Wierzchon while changing the stud of Wierzchon into a rigidly-threadably attached stud (without the use of a wheel nut)", page 6 of the response.

3. The combination of Wagner and Wierzchon would result in a pivotal threadably attachment of the wheel stud to the wheel bearing while applicants' claims 1 and 8 require the wheel stud 16 to be rigidly threadably attached to the wheel bearing 10 without the use of a wheel nut.

4. The motivation to combine the references is not found in either Kessen et al or Wierzchon, no technological motivation is provided.

B. Response to applicant's arguments.

1. In response to applicant's argument number one, the anticipation rejection of claims 1 and 3 over Wagner patent has been replaced by a new ground of obviousness rejection thereby rendering moot this argument.

2. In response to applicant's argument number two, it must be recognized that the rejection of the claims is simply based on the teaching of a stub member comprising first left external theads and second right external threads disclosed by Wiezerchon. Neither the previous 103 rejection nor the current obviousness rejection aims at substituting "a rigidly threadably attached stud (without the use of a wheel nut) of Wagner with the non-rigidly-threadably attached stud (without the use of a nut) of Wierzchon" as argued by applicant. The rejection simply formulates substituting the stud of Wagner by that of Wiezerchon, and doing this will not in any way result in pivotably loose connection as applicant seems to argue. The teaching of a stub member comprising first left external theads and second right external threads used to mount a master cylinder to the flange of a brake booster disclosed by Wiezerchon establishes a prima facie case of obviousness to one of ordinary skill in the art which would incorporate the use of a stub member comprising first left external theads and second right external threads as taught by Wiezerchon into the vehicle wheel bearing of Wagner in order to achieve among others the benefit of taking advantage of initial compressive force on the flange while reducing shear force on the bolt.

Applicant's argument that "Wiezerchom stud is not rigidly threadably attached to the internal threads 28 of the brake booster housing but is pivotally threadably attached allowing the studs 32 to pivot to align themselves with mounting openings 64 of the master cylinder 12" is not understood since any threaded connection using a threaded bolt or a stud is pivotable, either for allowing attachment or alignment of another member, or for increasing compression force in the attachment joint by tightening of the threaded bolt or stud. It must also be noted that the fact that Wiezercon mention that the stud "is pivotally threadably attached allowing the studs 32 to pivot to align themselves with mounting openings 64 of the master cylinder 12" doesn't mean that the stud is loosely attached to the internal thread of the brake booster as in a case of a studs going to a thru hole as applicant seems to argue, otherwise there would be no use for using threads between the flange of the brake booster and the stud. Wierzchon disclose a vehicle stud and flange apparatus in which the first external thread of the stud is rigidly threadably attached to the threads of the internal hole of the flange member 20 as shown in the figures.

3. In response to applicant's argument number three, it must be noted that combination of Wagner and Wierzcom will not in any way result in pivotably loose connection as discussed above but rather in a threadably rigid connection which reduces failure of the stud of the wheel bearing.

Applicant's argument that "Wierzchon describes a method which loosely retains a stud to a first member while allowing the stud to pivot. ... The method of Wierzchon pivotally threadably attaches the stud and does not rigidly threadbly attach the stud as required

by applicants' claim" is weak and is not supported by the end product of the Wierzchon which discloses a rigidly threadably attachment of the first external thread of the stud to the internal threads of the hole of flange member yielding a rigidly threadaby attachment with the internal thread of the hole thereby producing a compressive force on flange member 20. Applicant is relying on the fact that a method of fastening a flange of a master cylinder to a flange of a brake booster is described to set forth allegations that the stud is loosely retained. Nowhere in the figures of Wierzchon that a loose connection between the first external threads of the stud and the internal threads of the hole of the flange 20 is shown. It is well known that a threaded connection is typically a rigid connection which allow forward advancement of a threaded bolt using torsional force.

Furthermore, this argument is moot in view of the disclosure of Wagner patent which already includes a rigidly threadably attached stud (without the use of a wheel nut) to the internal threads of the hole of the rotatable wheel bearing. It is not understood how can using the threaded stud of Wierzchon into the flange of Wagner would result in a threadably loose connection.

4. The obviousness rejection based on Kessen patent has been withdrawn. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art would have been motivated to incorporate the teaching of "a stud including a first portion having bearing-engaging first external threads and including a second portion having nut-engaging second external threads, wherein the first portion has a first diameter at the first external threads, wherein the second portion has a second diameter at the second external threads, wherein the first portion has a bolt head, wherein the first external threads are disposed between the bolt head and the second external threads, wherein the first external threads are left handed threads" as taught by Wierzchon into the vehicle wheel bearing of Wagner in order to achieve, among others, the benefit of reducing stress in the spindle.

***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz F. Jules whose telephone number is (703) 308-8780. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph S. Morano can be reached on (703) 308-0230. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Frantz F. Jules
Examiner
Art Unit 3617

FFJ

April 4, 2004

FRANTZ F. JULES
PATENT EXAMINER